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| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO.             | CONFIRMATION NO.            |
|---|-------------|----------------------|---------------------------------|-----------------------------|
| 10/733,608  | 12/11/2003  | Raja Bala            | D/A1453                         | 8506                        |
| 25453 7590 05/12/2009<br>PATENT DOCUMENTATION CENTER<br>XEROX CORPORATION<br>100 CLINTON AVE SOUTH<br>MAILSTOP: XRX2-020<br>ROCHESTER, NY 14644 |             |                      |                                 |                             |
|   |             |                      | EXAMINER<br>CHENG, PETER L.     |                             |
|   |             |                      | ART UNIT<br>2625                | PAPER NUMBER                |
|   |             |                      | NOTIFICATION DATE<br>05/12/2009 | DELIVERY MODE<br>ELECTRONIC |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

usa.ogc.docket@xerox.com  
OfficeAction@xerox.com

### Office Action Summary

**Application No.**

10/733,608

**Applicant(s)**

BALA, RAJA

**Examiner**

PETER L. CHENG

**Art Unit**

2625

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 22 December 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,3-7,9-12,14-18 and 20-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3-7,9-12,14-18,20-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Objections*

1. Claim 1 is objected to because of the following informalities:
  - **Line 10: “the luminance compression function”** lacks antecedent basis; suggest replacing with **a luminance compression function**;
  - **Lines 17 - 18:** suggest replacing **wherein  $L_{comp1}(L_{in})$  ...** with either **wherein said functions  $L_{comp1}(L_{in})$  ...**, or **wherein the functions  $L_{comp1}(L_{in})$  ...**;
  - **Lines 18 - 19:** suggest replacing **wherein  $L_{comp1}(L_{in})$  ...** with either **wherein said functions  $L_{comp1}(L_{in})$  ...**, or **wherein the functions  $L_{comp1}(L_{in})$  ...**;
  - **Line 19: “the overall compression function”** lacks antecedent basis; in **claim 1, line 16**, suggest adding **, thereby, producing an overall compression function** after a **blending function  $\alpha(L_t)$** ;
  - **Line 20:** suggest replacing **the luminance dynamic range** with **a luminance dynamic range**;

- **Lines 20 - 21:** suggest replacing the more limited dynamic range with a more limited **luminance** dynamic range;
2. Claim 3 is objected to because of the following informalities:
- **Line 1:** suggest replacing **wherein  $L_{out}$  ...** with either **wherein said function  $L_{out}$  ...**, or **wherein the function  $L_{out}$  ...**;
3. Claim 4 is objected to because of the following informalities:
- **Line 1:** suggest replacing **wherein  $\alpha(L_f)$  ...** with either **wherein said function  $\alpha(L_f)$  ...**, or **wherein the function  $\alpha(L_f)$  ...**;
4. Claim 5 is objected to because of the following informalities:
- **Line 1:** suggest replacing **wherein function ...** with either **wherein said function ...**, or **wherein the function ...**;
5. Claim 5 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. The limitation cited in claim 5 is also cited in **claim 1, lines 16 – 17**;
6. Claim 6 is objected to because of the following informalities:

- **Line 1:** suggest replacing **wherein function ...** with either **wherein said function ...**, or **wherein the function ...**;

7. Claim 6 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. The limitation cited in claim 6 is also cited in **claim 1, line 17**;

8. Claim 7 is objected to because of the following informalities:

- **Line 2:** suggest replacing  $\alpha(L_i) = 0$  ... with either **said function  $\alpha(L_i)$  is equal to 0 ...**, or **the function  $\alpha(L_i)$  is equal to 0 ...**;
- **Line 3:** suggest replacing  $\alpha(L_i)$  ... with either **said function  $\alpha(L_i)$  ...**, or **the function  $\alpha(L_i)$  ...**;
- **Line 4:** suggest replacing  $\alpha(L_i) = 1$  ... with either **said function  $\alpha(L_i)$  is equal to 1 ...**, or **the function  $\alpha(L_i)$  is equal to 1 ...**;

9. Claim 12 is objected to because of the following informalities:

- **Lines 10 - 11:** "the luminance compression function" lacks antecedent basis; suggest replacing with **a luminance compression function**;

- **Line 17:** suggest replacing **wherein  $L_{comp1}(L_{in})$  ...** with either **wherein said functions  $L_{comp1}(L_{in})$  ...**, or **wherein the functions  $L_{comp1}(L_{in})$  ...**;
  - **Line 18:** suggest replacing **wherein  $L_{comp1}(L_{in})$  ...** with either **wherein said functions  $L_{comp1}(L_{in})$  ...**, or **wherein the functions  $L_{comp1}(L_{in})$  ...**;
  - **Line 19:** “the overall compression function” lacks antecedent basis; in **claim 12, line 15**, suggest adding **, thereby, producing an overall compression function** after a **blending function  $\alpha(L_t)$** ;
  - **Lines 19 - 20:** suggest replacing **the luminance dynamic range** with **a luminance dynamic range**;
  - **Line 20:** suggest replacing **the more limited dynamic range** with **a more limited luminance dynamic range**;
10. Claim 14 is objected to because of the following informalities:
- **Line 1:** suggest replacing **wherein  $L_{comp1}(L_{in})$  ...** with either **wherein said functions  $L_{comp1}(L_{in})$  ...**, or **wherein the functions  $L_{comp1}(L_{in})$  ...**;
11. Claim 15 is objected to because of the following informalities:

- **Line 1:** suggest replacing **wherein  $\alpha(L_1)$  ...** with either **wherein said function  $\alpha(L_1)$  ...**, or **wherein the function  $\alpha(L_1)$  ...**;
12. Claim 16 is objected to because of the following informalities:
- **Line 1:** suggest replacing **wherein function ...** with either **wherein said function ...**, or **wherein the function ...**;
13. Claim 16 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. The limitation cited in claim 16 is also cited in **claim 12, lines 15 – 16**;
14. Claim 17 is objected to because of the following informalities:
- **Line 1:** suggest replacing **wherein function ...** with either **wherein said function ...**, or **wherein the function ...**;
15. Claim 17 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. The limitation cited in claim 17 is also cited in **claim 12, lines 16 - 17**;

16. Claim 18 is objected to because of the following informalities:

- **Line 2:** suggest replacing  $\alpha(L_i) = 0 \dots$  with either said function  $\alpha(L_i)$  is equal to 0 ..., or the function  $\alpha(L_i)$  is equal to 0 ...;
- **Line 3:** suggest replacing  $\alpha(L_i) \dots$  with either said function  $\alpha(L_i)$  ..., or the function  $\alpha(L_i)$  ...;
- **Line 4:** suggest replacing  $\alpha(L_i) = 1 \dots$  with either said function  $\alpha(L_i)$  is equal to 1 ..., or the function  $\alpha(L_i)$  is equal to 1 ...;

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 101***

17. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

In addition, a § 101 process must (1) be tied to another statutory class (a particular machine or apparatus) or (2) transform underlying subject matter (such as an article or materials) to a different state or thing. If neither of these requirements is met by the claim, the method is not a patent eligible process under § 101 and should be rejected as being directed to non-statutory subject matter.

An example of a method claim that would not qualify as a statutory process would be a claim that recited purely mental steps. Thus, to qualify as a § 101 statutory process, the claim should positively recite the other statutory class (the thing or product) to which it is tied, *for example* by identifying the



apparatus that accomplishes the method steps, or positively recite the subject matter that is being transformed, *for example* by identifying the material that is being changed to a different state.

"Identifying the apparatus" requires that the process claim explicitly recite the particular machine or apparatus, or recite a step that inherently involves the use of a particular machine or apparatus.

The definition of an "inherent tie" is as follows:

The step requires a particular machine or apparatus such that the step cannot be performed mentally or manually in a manner that reasonably accomplishes the intended purpose of the recited invention, as claimed, without the use of a structure.

**Claim 12** is rejected under 35 U.S.C. 101 because the claimed invention (i.e., a *method for luminance dynamic range mapping*) is not tied to another statutory class.

Dependent **claims 14 – 18** and **20 - 22** are similarly rejected.

### ***Claim Rejections - 35 USC § 112***

18. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

19. **Claims 1 and 12** are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Specifically, the limitation, **spatially adapting the luminance compression function according to local image characteristics in**

**such a manner as to preserve both shadow detail and overall image contrast**, in the as-filed specification, **page 6, paragraph 23**, was not properly described.

That is, the current claims do not specify and the specification does not appear to teach how compression functions  $L_{comp1}(L_{in})$  and  $L_{comp2}(L_{in})$  *differ* in relation to the breakpoints  $B_1$  and  $B_2$  for blending function,  $\alpha(L_t)$ .

For instance, if  $L_{comp1}(L_{in})$  and  $L_{comp2}(L_{in})$  were identical except in the shadow region (i.e., region 1), and breakpoints  $B_1$  and  $B_2$  were located in the midtone or highlight regions, the resulting luminance compression function  $L_{out}$  would be identical to the (prior art) "inverse-gamma-inverse function" adjusted at the black point,  $L_{comp2}(L_{in})$ .

Dependent **claims 1, 3 -7, 9 – 12, 14 – 18 and 20 - 22** are similarly rejected.

### ***Claim Rejections - 35 USC § 112***

20. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

21. Claims **1 and 12** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Specifically, the limitations, **wherein the low pass filter is small enough that shadow regions are passed through as low luminance, and large enough to filter out detail in high-contrast regions**, are indefinite because the terms “small enough” and “large enough” are relative terms. Presumably, the characteristics of the low pass filter are dependent upon the input image.

Dependent **claims 1, 3 -7, 9 – 12, 14 – 18 and 20 - 22** are similarly rejected.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter L. Cheng whose telephone number is 571-270-3007. The examiner can normally be reached on MONDAY - FRIDAY, 8:30 AM - 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, King Y. Poon can be reached on 571-272-7440. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/King Y. Poon/  
Supervisory Patent Examiner, Art Unit 2625

/plc/  
April 27, 2009